

## Short Communication

### Notes on the identity, distribution and conservation status of the threatened plant species *Utricularia singeriana* F. Muell. (Lentibulariaceae)

IAN D. COWIE

Northern Territory Herbarium, Department of Natural Resources, Environment, The Arts and Sport,  
PO Box 496, Palmerston NT 0831, AUSTRALIA  
ian.cowie@nt.gov.au

Collection and examination of considerable *Utricularia* material from the Northern Territory over the last 15 years has provided a better understanding of morphological variation and allowed further interpretation of diagnostic characters in *Utricularia singeriana* F. Muell., among others. It is here regarded as a Northern Territory endemic species restricted to the Darwin-Katherine area while the specimens from Western Australia (WA) formerly attributed to *U. singeriana* are considered to be a distinct, probably undescribed, taxon requiring further collecting and research.

Taylor's (1989) revision of the genus *Utricularia* revealed that the Northern Territory (NT), especially the sandy, poorly drained lowlands found in parts of the western Top End, is a world centre of diversity for the genus with some 36 species in total. Since that time, an additional small-flowered species has been described and the distribution of a number of NT species has been extended to the Kimberley region and *visa versa* (Lowrie *et al.* 2008). At the time of Taylor's work *Utricularia holtzei* F. Muell., *U. singeriana* F. Muell., *U. triflora* P. Taylor and a number of other NT species were known from very few collections. Among these, *U. singeriana* was described by Taylor as occurring near Darwin, (the type specimen – N. Holtze 1026 and Bleeser 212) and in the Kununurra – Wyndham area of WA (Glover 81 & 82). While Taylor visited the NT and studied a number of species in the field, *U. singeriana* appears not to have been among these. Although the Darwin subpopulation has not been relocated since Bleeser's (1926) collection, several more populations have been discovered in the Edith – Fergusson River area, north of Katherine over the past ten years (Kerrigan & Cowie 2007). Recently (May 2010), an additional subpopulation was discovered near the Finnis River (K. Brennan pers. comm.). The species has been collected in flower from mid-March to late May and is known to occur along the seasonally waterlogged margins of drainage flats amongst a relatively sparse grass layer. Examination of the type specimen, plants in the field and considerable extra dried and spirit material has provided a better understanding of morphological variation and allowed further interpretation of diagnostic characters. Collections examined were: Brennan 6535, 8632; Cowie 12540; Egan

5141; Gibbons 41 & Cowie; Holtze 1026; Kerrigan 434; and Michell 2699.

The additional collections reveal that in *U. singeriana* the leaves are oblanceolate to spatulate and apically obtuse while the upper calyx lobe is widely ovate or obovate and the lower lobe is depressed-ovate and 2.5–4 mm wide. The spur of the corolla is patent to ascending, almost appressed to, or diverging at less than 30° from, the lower lip, 6–8 mm long, and at least in fresh flowers more than half the length of the lower lip and often slightly exceeding it. At the base, it is tetragonus in cross section, 3.5–4 mm wide and tapers relatively abruptly to a narrow, retuse, dorso-ventrally flattened apex (Figs 1, 2). The lower lip is 6–11 mm long with the pattern of veins radiating from the palate forming two longer central areoles with a group of three, sometimes four, shorter areoles either side of these. Outside of these shorter areoles lie three longer areoles. The upper lip is 9–12 mm long and the veins form four long, prominent areoles extending from the base for two-thirds of its length. In some collections these areoles are paler and clearly raised from the surface (Cowie 12540; Kerrigan 434). Moreover, the fresh corolla is a rich purple in the field and very dark in colour in dried specimens, even in the type which was collected in 1890. In the field, the corolla lips are held almost parallel to the ground.

Examination of Glover 81 reveals a number of characters that distinguish it from *U. singeriana*. It has very narrowly elliptic, acute leaves, the corolla spur is only 2 mm wide at its base and it diverges widely from the lower lip while the dried corolla is pale in colour (Fig. 3). In addition, the lower calyx lobe is ovate, the spur is 4–4.5 mm long, less than half the length of the lower lip which is 12–12.5 mm long, while the upper lip is only 5–6.4 mm long and lacks distinctive long, prominent areoles. Glover 82 is illustrated in Taylor (*loc. cit.*) and this illustration reveals that it also has a widely divergent corolla spur which is less than 2 mm deep at the base and that the patterns of the veins radiating from the palate form a single longer central areole with a group of four shorter areoles either side. Also the illustration of the upper lip is approx. 4.5 mm long and does not show distinctive long areoles. In addition, the two Glover collection localities are geographically disjunct by some



Fig. 1. Flower of *Utricularia singeriana*. A. Showing the relatively long upper lip with prominent areoles in the venation. The retuse apex of the spur can be seen just protruding from beneath the lower lip. B. Lateral view of flower showing the sub-planar orientation of the corolla lobes and the pale, tapering spur almost adpressed beneath the lower lip. The lower lip is 17 mm wide and the spur approx. 8 mm long. (I. D. Cowie 12540).

380 km from the nearest NT localities. While the taxon represented by these two collections needs further collection and research to determine its identity, it is clearly distinct from *U. singeriana*.

*Utricularia singeriana* is currently listed as Vulnerable under the *Territory Parks and Wildlife Conservation Act (NT)*, due to its small population size and restricted distribution. It is not listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act*, as the taxon has previously been regarded as occurring in both Western Australia and the Northern Territory (Kerrigan & Cowie 2007). As these authors note, the type population from near Darwin probably no longer exists and was apparently quite localised. Nicholas Holtze noted on his collection (No. 1026) that it was "So far only known [from] one small sandy flat (near Palmerston) of a few hundred square yards, where this species is to be found,



Fig. 2. A backlit flower from the holotype of *Utricularia singeriana* showing the typical relatively long, broad-based corolla spur against the lower lip. The lower lip is 19 mm wide. (N. Holtze 1026).



Fig. 3. *Utricularia* sp. from near Kununurra, WA. Note the short, relatively narrow spur which diverges widely from the lower lip, and the relatively short upper lip. Scale divisions = 0.5 mm. (Glover 81).

but there it grows very plentifully." Three known extant subpopulations are restricted to the upper Fergusson River area between Pine Creek and Katherine with two in Nitmiluk National Park. The fourth extant subpopulation is on Wagait Aboriginal land and appears localised, extending in a narrow zone along the edge of a drainage flat for a distance of some 50 m. Despite an intensive survey of *Utricularia* species in the Darwin rural area, and parts of Litchfield and Kakadu National Parks extending over several wet seasons, no additional subpopulations were located (Kerrigan & Cowie 2007). However, comparatively little survey work specifically targeted at *Utricularia* species has been conducted within the southern and western part of the range of *U. singeriana*.

Thus, it is appropriate that the Northern Territory conservation code of Vulnerable should now be applied at the National level. While in the past, species-specific survey has been hampered by lack of knowledge of habitat requirements, this has become less of an issue with additional collecting. It is likely that further surveys in the late wet to early dry season using appropriate methodology would reveal other subpopulations, at least in the Fergusson and Finnis River areas.

#### ACKNOWLEDGEMENTS

Philip Short provided constructive comments on the manuscript. The Directors of PERTH and MEL kindly loaned selected *Utricularia* specimens to DNA for examination by the author.

#### REFERENCES

- Commonwealth of Australia. 1999. *Environment Protection and Biodiversity Conservation Act*. Commonwealth of Australia: Canberra.
- IUCN 2001. *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. IUCN: Gland and Cambridge.
- Kerrigan, R.A. & Cowie, I.D. 2007. *Utricularia singeriana*. P. 96. In Woinarski, J.C.Z., Pavey, C., Kerrigan, R.L., Cowie, I.D. & Ward, S. (eds) *Lost from our landscape: threatened species in the Northern Territory*. Northern Territory Department of Natural Resources, Environment and the Arts: Palmerston.
- Lowrie, A., Cowie, I.D. & Conran, J.G. 2008. A new species and section of *Utricularia* (Lentibulariaceae) from northern Australia. *Telopea* **12**: 36–46.
- Northern Territory of Australia. 2000. *Territory Parks and Wildlife Conservation Act*. Northern Territory of Australia: Darwin.
- Taylor, P. 1989. *The genus Utricularia – A taxonomic monograph*. Her Majesty's Stationary Office: London.

Accepted 12 July 2010